WHAT IS CLAIMED IS:

1. An injection blow-molded disposable tumbler exhibiting biaxial toughness formed from a polymeric material comprising:

(a) a base forming the bottom of said tumbler defining an outer edge thereof;

(b) a sidewall integrally formed with said base extending upwardly from the outer edge thereof defining about its upper extremity a fortified rim; and

(c) wherein said fortified rim has a thickness greater than the adjacent portion of said sidewall.

2. An injection blow-molded disposable tumbler exhibiting biaxial toughness formed from a polymeric material comprising:

(a) a base forming the bottom of said tumbler defining an outer edge thereof;

(b) a sidewall integrally formed with said base extending upwardly from the outer edge thereof having a thickness of from about 5 to about 50 mils defining about its upper extremity a fortified rim;

(b) said sidewall extending upwardly with a taper of from about 1.0 to about 4.5 degrees;

wherein said fortified rim has a thickness of at least 2 mils greater than the adjacent portion of said sidewall over a height of at least 2 mils.

3. The tumbler according to Claim 2, wherein said sidewall extends upwardly with a taper of from about 2.75 to about 4 degrees.

4. The tumbler according to Claim 3, wherein said sidewall extends upwardly with a taper of about 3 degrees.

5. The tumbler according to Claim 2, wherein said fortified rim has a thickness and a height of from about 1.5 to about 6 times the thickness of the adjacent portion of the sidewall.

6. The tumbler according to Claim 2, wherein said fortified rim has a thickness and height of from about 3 to about 5 times the thickness of the adjacent portion of said sidewall.

7. The tumbler according to Claim 2, wherein said polymer is a thermoplastic optically clear polymer with a haze value of less than 10.

8. The tumbler according to Claim 7, wherein said optically clear polymer is selected from the group consisting of polystyrene, clarified polypropylene, polyesters, polycarbonates, polyacrylates and styrene acrylonitrile.

9. The tumbler, according to Claim 2, wherein said polymer is polystyrene.

10. An injection blow-molded disposable tumbler formed from a polymeric material comprising:

(a) a base forming the bottom of said tumbler defining an outer edge thereof;

(b) a sidewall integrally formed with said base extending upwardly from the outer edge thereof having a thickness of from about 5 to about 50 mils defining about its upper extremity a fortified rim;

(c) said sidewall exhibiting biaxial toughness, the volume of said injection molded tumbler being from about 1.5 to about 4 times the volume of an injection molded parison from which it was prepared;

wherein said fortified rim has a thickness of at least 2 mils greater than the adjacent portion of said sidewall over a height of at least 2 mils; and
wherein said tumbler has a taper from about 1.0 to about 4.5 degrees.

11. The tumbler according to Claim 10, wherein the volume of said tumbler is from about 1.75 to about 3 times the volume of the injection molded parison from which it was prepared.

12. The tumbler according to Claim 11, wherein the volume of the tumbler is about twice the volume of the injection molded parison from which it was prepared.

13. The tumbler according to Claim 10, wherein said sidewall has a thickness of from about 10 to about 35 mils.

14. The tumbler according to Claim 13, wherein the sidewall has a thickness of from about 15 to about 25 mils.

15. The tumbler according to Claim 14, wherein the sidewall has a thickness of about 20 mils.

16. An injection blow-molded tumbler formed of an optically clear polymer comprising;

(a) a substantially circular base portion with an outer edge;

(b) a substantially cylindrical base portion with an outer edge;

(c) a substantially cylindrical sidewall extending upwardly from the outer edge of the base portion having a thickness of from about 5 to about 50 mils defining about its upper extremity a fortified rim;

said sidewall extending upwardly with an angular taper with its central axis of from about 1.0 to about 4.5 degrees;

said fortified rim having a thickness of at least 2 mils greater than an adjacent portion of said sidewall;

said sidewall further including a pattern which alters the cylindrical character thereof over at least a portion of said sidewall which pattern is operative as a grip portion for a user.

17. The tumbler according to Claim 16, wherein a ratio of the height of the tumbler to the inside diameter of the upper portion of the sidewall is from about 2 to about 4.

18. The tumbler according to Claim 17, wherein said ratio is about 3.

19. The tumbler according to Claim 16, wherein said tumbler has contained volume of from about 12 to about 15 ounces.

20. The tumbler according to Claim 16, wherein said tumbler defines an inner volume of about 14 ounces.

21. The tumbler according to Claim 16, wherein said tumbler has a height of from about 5.75 to about 6 inches.

22. An injection blow-molded disposable tumbler exhibiting biaxial toughness formed of a polymeric material comprising:

(a) a base forming the bottom of said tumbler defining an outer edge thereof;

(b) a sidewall integrally formed with said base extending upwardly from the outer edge thereof having a thickness of from about 5 to about 50 mils defining about its upper extremity a fortified rim;

said sidewall extending upwardly with a taper of from about 2.5 to about 10 degrees;

wherein said fortified rim has a thickness of at least 2 mils greater than the adjacent portion of said sidewall over a height of at least 2 mils.

23. The tumbler according to Claim 22, wherein said sidewall extends upwardly with a taper of from about 4.5 to about 10 degrees.

24. The tumbler according to Claim 23, wherein said sidewall extends upwardly with a taper of from about 4.5 to about 7.5 degrees.

25. The tumbler according to Claim 22, wherein said fortified rim has a thickness and a height of from about 1.5 to about 6 times the thickness of the adjacent portion of the sidewall.

26. The tumbler according to Claim 22, wherein said fortified rim has a thickness and height of from about 3 to about 5 times the thickness of the adjacent portion of said sidewall.

27. The tumbler according to Claim 22, wherein said tumbler is formed of optically clear polymer with a haze value of less than 10.

28. The tumbler according to Claim 22, wherein said optically clear polymer is selected from the group consisting of polystyrene, clarified polypropylene, polyesters, polycarbonates, polyacrylates and styrene acrylonitrile.

29. The tumbler, according to Claim 22, wherein said polymer is polystyrene.

30. An injection blow-molded disposable tumbler formed of an optically clear polymer comprising:

(a) a base forming the bottom of said tumbler defining an outer edge thereof;

(b) a sidewall integrally formed with said base extending upwardly from the outer edge thereof having a thickness of from about 5 to about 50 mils defining about its upper extremity a fortified rim;

said sidewall exhibiting biaxial toughness, the volume of said injection molded tumbler being from about 1.5 to about 4 times the volume of an injection molded parison from which it was prepared;

wherein said fortified rim has a thickness of at least 2 mils greater than the adjacent portion of said sidewall over a height of at least 2 mils; and

wherein said tumbler has a taper from about 2.5 to about 10 degrees.

31. The tumbler according to Claim 30 wherein the volume of said tumbler is from about 1.75 to about 3 times the volume of the injection molded parison from which it was prepared.

32. The tumbler according to Claim 31 wherein the volume of the tumbler is about twice the volume of the injection molded parison from which it was prepared.

33. The tumbler according to Claim 30 wherein said sidewall has a thickness of from about 10 to about 35 mils.

34. The tumbler according to Claim 33 wherein the sidewall has a thickness of from about 15 to about 25 mils.

35. The tumbler according to Claim 34 wherein the sidewall has a thickness of about 20 mils.

36. An injection blow-molded tumbler formed of an optically clear polymer comprising:

(a) a substantially circular base portion with an outer edge;

(b) a substantially cylindrical sidewall extending upwardly from the outer edge of the base portion having a thickness of from about 5 to about 50 mils defining about its upper extremity a fortified rim;

said sidewall extending upwardly with an angular taper with its central axis of from about 4.5 to about 10 degrees;

said fortified rim having a thickness of at least 2 mils greater than an adjacent portion of said sidewall;

said sidewall further including a pattern which alters the cylindrical character thereof over at least a portion of said sidewall which pattern is operative as a grip portion for a user.

37. The tumbler according to Claim 36 wherein a ratio of the height of the tumbler to the inside diameter of the upper portion of the sidewall is from about 1 to about 5.

38. The tumbler according to Claim 37 wherein said ratio is from about 1.3 to about 1.7.

39. The tumbler according to Claim 35 wherein the height of said tumbler is from about 4.6 to about 4.8 inches.

40. The tumbler according to Claim 35 wherein the volume defined by said tumbler is from about 12 to about 16 ounces.

41. The tumbler according to Claim 35 wherein the volume defined by said tumbler is about 15 fluid ounces.

42. An injection blow-molded disposable tumbler exhibiting biaxial toughness formed of a polymeric material comprising;

(a) a base forming the bottom of said tumbler defining an outer edge thereof;

(b) a sidewall integrally formed with said base extending upwardly from the outer edge thereof having a thickness of from about 5 to about 50 mils defining about its upper extremity a fortified rim;

said sidewall extending upwardly with a taper of from about 1 to about 10 degrees;

wherein said fortified rim has a thickness of at least 2 mils greater than the adjacent portion of said sidewall over a height of at least 2 mils, said tumbler defining a volume of at least about 16 fluid ounces.

43. The tumbler according to Claim 42, wherein said sidewall extends upwardly with a taper of from about 2.75 to about 9 degrees.

44. The tumbler according to Claim 43, wherein said sidewall extends upwardly with a taper of from about 5 to about 7 degrees.

45. The tumbler according to Claim 42, wherein said fortified rim has thickness and a height of from about 1.5 to about 6 times the thickness of the adjacent portion of the sidewall.

46. The tumbler according to Claim 42, wherein said fortified rim has a thickness and height of from about 3 to about 5 times the thickness of the adjacent portion of said sidewall.

47. The tumbler according to Claim 42, wherein said polymeric material is an optically clear polymer with a haze value of less than 10.

48. The tumbler according to Claim 42, wherein said optically clear polymer is selected from the group consisting of polystyrene, clarified polypropylene, polyesters, polycarbonates, polyacrylates and styrene acrylonitrile.

49. The tumbler, according to Claim 42, wherein said polymer is polystyrene.

50. An injection blow-molded disposable tumbler of an optically clear polymer comprising:

(a) a base forming the bottom of said tumbler defining an outer edge thereof;

(b) a sidewall integrally formed with said base extending upwardly from the outer edge thereof having a thickness of from about 5 to about 50 mils defining about its upper extremity a fortified rim;

said sidewall exhibiting biaxial toughness, the volume of said injection molded tumbler being from about 1.5 to about 4 times the volume of an injection molded parison from which it was prepared and said tumbler defining a volume of from about 16-20 fluid ounces;

wherein said fortified rim has a thickness of at least 2 mils greater than the adjacent portion of said sidewall over a height of at least 2 mils; and

wherein said tumbler has a taper from about 2.5 to about 10 degrees.

51. A method of forming a durable polycarbonate permaware container comprising:

(a) injecting molten polycarbonate into a mold cavity formed by a mold wall and a core to form a polycarbonate parison on the core;

(b) separating the parison from the mold wall by moving the parison on the core axially in a straight path away from the mold wall;

(c) moving the parison on the core in a substantially arcuate path into axial alignment with a blow mold which is in a side-by-side relationship with the mold cavity;

(d) moving the parison on the core axially in a straight path into the blow mold;

and

(f) expanding the parison on the core in the blow mold at a uniform temperature to form a hollow container having a sidewall integrally formed to a base and a fortified rim, the sidewall having a uniform thickness of from about greater than 50 mils to about 500 mils.

52. The method of Claim 51, wherein the sidewall has a uniform thickness of from about 75 mils to about 375 mils.

53. The method of Claim 51, wherein the polycarbonate is injected into the mold cavity at a temperature of from about 450°F to about 700°F.

54. The method of Claim 53, wherein the polycarbonate is injected into the mold cavity at a temperature of from about 500°F to about 650°F.

55. The method of Claim 51, wherein the molten polycarbonate is injected into the mold cavity at a pressure of about 1,000 to 3,000 psi.

56. The method of Claim 55, wherein the molten polycarbonate is injected into the mold cavity at an injection pressure of about 2,100 psi.

57. The method of Claim 51, wherein the parison is expanded at a uniform temperature of from about 250°F to about 500°F.

58. The method of Claim 57, wherein the parison is expanded at a pressure of from about 100 to about 500 psi.

59. The method of Claim 51, wherein the polycarbonate comprises aromatic homopolycarbonate or aromatic copolycarbonate resins.

60. The method of Claim 51, wherein the polycarbonate has a melt flow rate of from about 10 to 22 g/10 min.

61. An injection blow-molded polycarbonate permaware hollow container comprising:

(a) a base forming the bottom of said container defining an outer edge thereof;

(b) a sidewall integrally formed with said base extending upwardly from the outer edge thereof and having a thickness of from about over 50 to about 500 mils to a fortified rim about its upper extremity.

62. The permaware polycarbonate container of Claim 61, wherein the fortified rim has a thickness of at least 2 mils greater than an adjacent portion of the sidewall over a height of at least 2 mils.

63. The permaware polycarbonate container of Claim 61, wherein both width and height of the fortified rim are from about 1.1 to about 4 times a thickness of an adjacent sidewall.

64. The permaware polycarbonate container of Claim 63, wherein both the width and the height of the fortified rim are about 100 mils and the adjacent sidewall is about 80 mils.

65. The permaware polycarbonate container of Claim 61, wherein the base is from about 1.1 to about 8 times the thickness of the sidewall.

66. The permaware polycarbonate container of Claim 61, wherein the polycarbonate comprises aromatic homopolycarbonate or aromatic copolycarbonate resins.

67. The permaware polycarbonate container of Claim 66, wherein the polycarbonate has a melt flow rate of 10 to 22 g/10 min.

68. The permaware polycarbonate container of Claim 61, wherein the bottom of said base has integrally molded thereto indicia or a configuration different from the remaining base.

69. A method of forming a container having a wall thickness greater than 50 mils, said container containing sidewalls and an integrally formed base, comprising:

(a) blowing a parison in a blow mold shaped in the form of said container,

(b) inserting within said blown container a core which presses the base of said container against a mold face having thereon indicia or other structural configurations so as to mold said indicia or other mold configurations onto the outside surface of said base.

70. The process of Claim 69, wherein said parison is formed from a polycarbonate plastic and said parison is blown by directing fluid pressure initially at the top of the parison and directing the fluid pressure from said top toward said base of said parison.

71. A method of forming a container comprising:

(a) injecting molten resin into a mold cavity formed by a mold wall and a core to form a resinous parison on the core;

(b) separating the parison from the mold wall by moving the parison on the core axially in a straight path away from the mold wall;

(c) moving the parison on the core in a substantially arcuate path into axial alignment with a blow mold which is in a side-by-side relationship with the mold cavity;

(d) moving the parison on the core axially in a straight path into the blow mold; and

(e) expanding the parison on the core in the blow mold at a uniform temperature to form a hollow container said resin selected from the group consisting of filled polystyrene, filled and non-filled polycarbonate, polyethylene terephthalate, polycarbonate and ABS mixtures, acrylic resins, clarified polypropylene and polyvinylchloride.

72. The method of Claim 71, wherein the filled resins contain up to 5 wt.% of nanometer-sized particles.

73. The method of Claim 72, wherein said nanometer-sized particles comprise a clay.

74. A transparent drinking tumbler comprised of polystyrene filled with nanometer-sized particles having a size within the range of visible-light wavelengths.

75. A method of forming a container having a wall thickness greater than 50 mils, said container containing sidewalls and an integrally-formed base, comprising:

blowing a parison in a blow mold shaped in the form of said container to form a hollow container,

inserting within said hollow container which remains in said blow mold a core which presses the base of said container against a mold face having thereon indicia or other structural configurations so as to mold said indicia or other mold configurations onto the outside surface of said base.

76. A method of forming a container comprising:

(a) injecting molten resin into a mold cavity formed by a mold wall and a core to form a resinous parison on the core;

(b) separating the parison from the mold wall by moving the parison on the core axially in a straight path away from the mold wall;

(c) moving the parison on the core in a substantially arcuate path into axial alignment with a blow mold which is in a side-by-side relationship with the mold cavity;

(d) moving the parison on the core axially in a straight path into the blow mold; and

(e) expanding the parison on the core in the blow mold by directing fluid initially at the top of the parison and directing the fluid pressure from said top toward the base of said parison at a uniform temperature to form a hollow container;

said resin selected from the group consisting of polycarbonate, polyethylene terephthalate, polycarbonate and ABS mixtures, acrylic resins, clarified polypropylene and polyvinylchoride.

77. An injection blow-molded disposable tumbler exhibiting biaxial toughness formed from a polymeric material including a copolymer of styrene and butadiene comprising:

(a) a base forming the bottom of said tumbler defining an outer edge thereof;

(b) a sidewall integrally formed with said base extending upwardly from the outer edge thereof defining about its upper extremity a fortified rim; and

(c) wherein said fortified rim has a thickness greater than the adjacent portion of said sidewall.

78. The injection blow-molded tumbler according to Claim 77, wherein the amount of butadiene residue in said copolymer is from about 2 to about 40 percent by weight.

79. The injection blow-molded tumbler according to Claim 77, wherein the amount of butadiene residue in said copolymer is from about 15 to about 30 percent by weight.

80. The injection blow-molded tumbler according to Claim 77, wherein said tumbler consists essentially of styrene-butadiene copolymer blended with polystyrene.

81. The injection blow-molded tumbler according to Claim 77, wherein said polymeric material consists of a blend of polystyrene with a copolymer of styrene and butadiene.

82. An injection blow-molded disposable tumbler exhibiting biaxial toughness formed from a polymeric material including an impact modifier comprising:

(a) a base forming the bottom of said tumbler defining an outer edge thereof;

(b) a sidewall integrally formed with said base extending upwardly from the outer edge thereof defining about its upper extremity a fortified rim; and

(d) wherein said fortified rim has a thickness greater than the adjacent portion of said sidewall, and said impact modifier is selected from the group consisting of core shell polymers, olefin containing copolymers, rubber polymers and copolymers, styrene containing copolymers, and mixtures thereof.

83. An injection blow-molded disposable tumbler exhibiting biaxial toughness formed from a polymeric material including a mineral filler comprising:

(a) a base forming the bottom of said tumbler defining an outer edge thereof;

(b) a sidewall integrally formed with said base extending upwardly from the outer edge thereof defining about its upper extremity a fortified rim; and

(c) wherein said fortified rim has a thickness greater than the adjacent portion of said sidewall, and wherein said mineral filler is present in an amount of from about 5 to about 50 wt.%.

84. The injection blow-molded tumbler according to Claim 83, wherein said mineral filler is present in an amount of from about 8 to about 20 wt.%.

85. The injection blow-molded tumbler according to Claim 84, wherein said mineral filler is present in an amount of from about 10 to about 15 wt.%.